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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,271	07/10/2008	Shaomeng Wang	UM-13017	7755

72960 7590 10/08/2010
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EXAMINER

CHANDRAKUMAR, NIZAL S

ART UNIT	PAPER NUMBER
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1625

MAIL DATE	DELIVERY MODE
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10/08/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,271	Applicant(s) WANG ET AL.	
	Examiner NIZAL S. CHANDRAKUMAR	Art Unit 1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 9, 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicants response filed 8/31/2010 is acknowledged.

Claims 1-10, 36-40 are in the case and are under Examination.

Election/Restrictions

As per papers filed 1/29/2010, the Election was made without traverse. The elected group is drawn to compounds of Formula I, wherein Y1 and Y2 are (CH₂)₁₋₅.

Applicant is encouraged to delete non-elected subject matter.

Response to Applicants Remarks:

Double Patenting

Previously presented double patenting rejection is held in abeyance in view of the Terminal disclaimer filed on 8/31/2010.

Claim Rejections - 35 USC § 112

Amendments to claims overcome the previously presented rejection (scope of enablement).

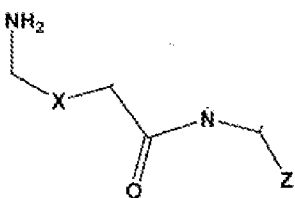
New Rejections:

Claim Rejections - 35 USC § 112

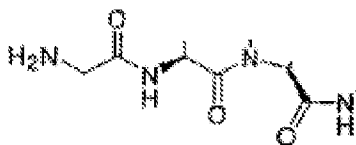
The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1-3, 6-8, 36-40 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for few compounds of the elected group wherein X and Z are CONH such that the partial structure of the elected formula I (herein formula



corresponds to



(peptidic backbone) does not reasonably provide

enablement for the large number of structural possibilities claimed for the X and Z variables. See pages 21-25, 66-69. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to **make and use** the invention commensurate in scope with these claims.

The determination that "undue experimentation" would have been needed to make and use the claimed invention is not a single, simple factual determination. Rather, it is a conclusion reached by weighing all the relevant factual considerations.

Enablement is considered in view of the Wands factors (MPEP 2164.01 (a)). These include: (1) breadth of the claims; (2) nature of the invention; (3) state of the prior art; (4) amount of direction provided by the inventor; (5) the level of predictability in the art; (6) the existence of working examples; (7) quantity of experimentation needed to make or use the invention based on the content of the disclosure; and (8) relative skill in the art.

All of the factors have been considered with regard to the claims, with the most relevant factors discussed below:

The invention is that the instantly claimed compounds, by mimicking the protein/peptide Smac, inhibits Apoptosis protein. The specification lacks disclosure sufficient to make and use the invention commensurate with the scope of the claims.

The claimed compounds are bicyclic analogs of the open chain natural peptide amide backbone, the short-range cyclization providing conformational restriction. The state of the art is that the side-chain functionalities are consumed for assembling the bicyclic ring system, therefore structural moieties external to the bicyclic system are critical to the biochemical properties of conformationally constrained mimics of open chain peptides. The bicyclic systems of the claimed formula are well known in the art. See for example, Lombart et al. Journal of Organic Chemistry, 1996, 61, 9437-9446 (and references cited therein), Flynn et al. Journal of the American Chemical Society, 1987, 109, 7914-7915. In the instant formula I, the units exocyclic to the bicyclic ring system are thus, not only critical to the potential binding activity, but also distinguish the instant claimed compounds to similar compounds in the prior art. One of skill in the art would

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therefore, anticipate the amide bonds corresponding to X and Z of the elected formula to be critical to the potential use of the claimed compounds. This anticipation is consistent with what is taught in the specification. See data shown for SH-106 and SH-107 in Table-1 page 65. These are the only compounds disclosed in the specification that have the X and Z moieties other than amide bonds (peptide bonds, CONH). These compounds display substantially diminished activity corresponding to their amide counterpart compounds SH-104 and SH-102 respectively. Further, the data shown on page suggest in compounds of the formula I (with the limitation X and Z being CONH), some are active, some are inactive and some show marginal activity. All biological data taught in the Figure-1 through Figure-18C of the specification relate to compounds wherein X and Z correspond to CONH moieties. The specification teaches very little in the form of Structure Activity Relationship. Thus there is no structural guidance such as pharmacophore definition discernible in the disclosure that could direct and guide one skilled in the art to identify embodiments with X and Z units other than CONH that could have useful properties. Therefore one of skill in the art would be faced with undue amount of research to arrive at alternate moieties for X and Z amide (CONH).

The claims are not commensurate in scope with the breadth of enablement in as much as the working examples in the application are limited to one possibility for the X and Z variables compared to the wide breadth of the claims, the unpredictability of the art, the high quantity of experimentation needed to make and use the compounds of the instant claims.

MPEP 2164.01(a) states, "A conclusion of lack of enablement means that,

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based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ 2d 1510, 1513 (Fed. Cir. 1993)." That conclusion is clearly justified here. Thus, undue experimentation would be required to make and use Applicants' invention.

The specification is enabling for compounds of formula wherein X and Z are limited CONH.

Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001, states "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and dependent claims 2-4, 6-9, 36-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In base claim 1, the orientation of, i.e., connectivity of the bivalent variables X and Z to the rest of the molecule is unclear. Thus, it is unclear of the CONH possibility for X, which part of CONH is linked to the bicyclic system. Is it NH or CO?

The dependent claims do not solve the problem of claim 1.

Allowable Subject Matter

Claims 4, 5, 9, 10 are objected to as being dependent upon a rejected base claim 1, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIZAL S. CHANDRAKUMAR whose telephone number is (571)272-6202. The examiner can normally be reached on 8.30 AM - 4.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571 0272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nizal S Chandrakumar/
Acting Examiner of Art Unit 1625